

Daniel Lenz

Personal information

Date of birth January 21st, 1988

Place of birth Bonn, Germany

Nationality German

Work experience

Since 10/2016 **Postdoctoral research scholar**, *Jet Propulsion Laboratory (NASA)/California Institute of Technology*.

- Cosmic background radiation
- Modelling of the multiphase interstellar medium
- Star-formation history of the Universe, Epoch of Reionisation

05/2013 – **Scientific staff**, *Argelander Institute for Astronomy (AIfA), Bonn*.

- PhD thesis in radio astronomy
- Software development, mostly in python, applied statistics, and machine learning
- Supervision of undergrads and tutoring

01/2010 – **Student research assistant**, *AIfA/Max Planck Institute for Radio Astronomy, Bonn*.

04/2013 *Bonn*.

- Data reduction and -analysis for the Effelsberg-Bonn HI Survey
- Tutoring and supervision of undergraduate students
- Public outreach, compiling lecture notes

Education

05/2013 – **PhD in astrophysics**, *University of Bonn*.

09/2016 **Advisor:** PD Dr. Jürgen Kerp

Thesis: Gas and dust from a full-sky perspective.

- Explore the multiphase ISM of the Milky Way with full-sky data sets
- Reveal the cosmic infrared background on large scales
- Image analysis, Bayesian inference, and machine learning

10/2011 – **Master of science in astrophysics**, *University of Bonn*.

04/2013 **Advisor:** PD Dr. Jürgen Kerp

Advanced education in physics, focused on astronomy and astrophysics

Thesis: Interaction of high-velocity clouds with the Milky Way galaxy.

- Investigate the impact of high-velocity clouds and their interaction with the ambient medium.
- Based on correlation of HI and far-infrared dust data.

10/2008 – **Bachelor of science in physics**, *University of Bonn*.

09/2011 Basic education in physics

Thesis: Determining HI masses of nearby galaxies and comparing them to interferometric data, quantifying the missing scales in the UV-coverage.

Languages

- German** Mother tongue
English Fluent
French Basic

Awards

- 2013 Acceptance to the *honors branch* of the Bonn-Cologne Graduate School of Physics and Astronomy
2012 Scholarship for academic excellence from the University of Bonn
2007 Award for excellence in high school from the German Physical Society

Workshops and seminars

- 2014 **14th Synthesis Imaging Workshop**, Socorro, NM, USA.
In-depth lectures and tutorials on radio interferometry with the VLA and ALMA
2012 **Scientific Writing, Lecture**, University of Bonn.
2011 **Seminar on creating scientific presentations**, *Lecture*, University of Bonn.

Selected talks and presentations

- 2015 **Gas and dust from a full-sky perspective**, *Radio astronomy seminar at JPL/Caltech*, Pasadena, USA.
2015 **A global view on the correlation of dust and gas**, *Life cycle of gas in galaxies: a local perspective*, Dwingeloo, Netherlands.
2014 **Interaction of high-velocity clouds with the Milky Way**, *Annual meeting of the Bonn-Cologne Graduate School of Physics and Astronomy*, Cologne, Germany.
2013 **Physical properties of the High-Velocity Cloud impact areas**, *Modern Radio Universe*, Bonn, Germany.
2013 **Physical properties of the High-Velocity Cloud impact areas**, *47th ESLAB symposium*, Nordwijk, Netherlands.
2013 **Re-fuelling the Milky Way. From single clouds to the full sky**, *Annual meeting of the German Astronomical Society*, Tübingen, Germany.
2011 **HI-mass comparison of nearby galaxies (EBHIS and THINGS)**, *Young European Radio Astronomers Conference*, Manchester, UK.

Teaching

- Autumn 2015 **Master thesis supervision**, *C. Duesing*, A statistical analysis of compact low-velocity HI clouds.
Autumn 2015 **Bachelor thesis supervision**, *S. Stadler*, High-velocity cloud complex M: Correlation of neutral atomic hydrogen and dust.
Autumn 2014 **Bachelor thesis supervision**, *J. Schueller-Ruhl*, Determining the dust content of high-velocity clouds via stacking.

- Autumn 2014 **Bachelor thesis supervision**, *S. Noesel*, Quantifying the radio continuum emission in large scale HI surveys.
- Autumn 2014 **Bachelor thesis supervision**, *H. Zohren*, On the association between a high-velocity cloud and radio continuum emission.
- Autumn 2012/2013 **Radio lab course: observing with a 25m dish.**
- 2011-2014 (winter term) **Tutor for *Introduction to astronomy*.**
- 2011-2014 (summer term) **Tutor for *Introduction to radio astronomy*.**

Publications

Refereed publications

- Röhser, T., Kerp, J., **Lenz, D.**, Winkel, B., “An all-sky census of Galactic high-latitude molecular intermediate-velocity clouds”. In: *ArXiv e-prints* (Sept. 2016). arXiv: 1609.06540.
- Winkel, B., **Lenz, D.**, Flöer, L., “Cygrid: A fast Cython-powered convolution-based gridding module for Python”. In: *A&A* 591, A12 (June 2016), A12. DOI: 10.1051/0004-6361/201628475. arXiv: 1604.06667 [astro-ph.IM].
- Kalberla, P. M. W., Kerp, J., Haud, U., Winkel, B., Ben Bekhti, N., Flöer, L., **Lenz, D.**, “Cold Milky Way HI Gas in Filaments”. In: *ApJ* 821, 117 (Apr. 2016), p. 117. DOI: 10.3847/0004-637X/821/2/117. arXiv: 1602.07604.
- Kerp, J., **Lenz, D.**, Röhser, T., “Star formation in a diffuse high-altitude cloud?” In: *A&A* 589, A123 (Apr. 2016), A123. DOI: 10.1051/0004-6361/201526984. arXiv: 1603.05396.
- Kerp, J., Kalberla, P. M. W., Ben Bekhti, N., Flöer, L., **Lenz, D.**, Winkel, B., “A survey of HI gas toward the Andromeda galaxy”. In: *A&A* 589, A120 (Apr. 2016), A120. DOI: 10.1051/0004-6361/201526395. arXiv: 1603.05400.
- **Lenz, D.**, Flöer, L., Kerp, J., “Dust in a compact, cold, high-velocity cloud: A new approach to removing foreground emission”. In: *A&A* 586, A121 (Feb. 2016), A121. DOI: 10.1051/0004-6361/201526304. arXiv: 1512.08769.
- Winkel, B., Kerp, J., Flöer, L., Kalberla, P. M. W., Ben Bekhti, N., Keller, R., **Lenz, D.**, “The Effelsberg-Bonn H i Survey: Milky Way gas. First data release”. In: *A&A* 585, A41 (Jan. 2016), A41. DOI: 10.1051/0004-6361/201527007. arXiv: 1512.05348 [astro-ph.IM].
- **Lenz, D.**, Kerp, J., Flöer, L., Winkel, B., Boulanger, F., Lagache, G., “Far-infrared excess emission as a tracer of disk-halo interaction”. In: *A&A* 573, A83 (Jan. 2015), A83. DOI: 10.1051/0004-6361/201424618. arXiv: 1412.2529.
- Vaduvescu, O., Birlan, M., Tudorica, A., Popescu, M., Colas, F., Asher, D. J., Sonka, A., Suciu, O., Lacatus, D., Paraschiv, A., Badescu, T., Tercu, O., Dumitriu, A., Chirila, A., Stecklum, B., Licandro, J., Nedelcu, A., Turcu, E., Vachier, F., Beauvalet, L., Taris, F., Bouquillon, L., Pozo Nunez, F., Colque Saavedra, J. P., Unda-Sanzana, E., Karami, M., Khosroshahi, H. G., Toma, R., Ledo, H., Tyn dall, A., Patrick, L., Föhring, D., Muelheims, D., Enzian, G., Klaes, D., **Lenz, D.**, Mahlberg, P., Ordenes, Y., Sendlinger, K., “739 observed NEAs and new 2-4 m survey statistics within the EURONEAR network”. In: *Planet. Space Sci.* 85 (Sept. 2013), pp. 299–311. DOI: 10.1016/j.pss.2013.06.026. arXiv: 1308.5594 [astro-ph.EP].